

7.1 Simple Interest

Simple Interest Formula:

$$I = Prt$$

I- interest earned, in dollars

P- principal, original amount invested or borrowed, in dollars

r- annual interest rate, expressed as a decimal

t- time in years

A-final amount of the investment or loan, in dollars

So Simple Interest Amount Formula is:

$$I = Prt$$

OR

$$A = P(1 + rt)$$

+

$$A = P + I$$

Looking at time:

1 year = 1 year

19 weeks = $\frac{19}{52}$ years

52

7 months = $\frac{7}{12}$ years251 days = $\frac{251}{365}$ years

365

Ex 1:

Lisa invested \$8000 at 9.25% for 30 months. Calculate the interest earned and the (final) amount.

$$\textcircled{1} I = Prt$$

$$= 8000 \times \left(\frac{9.25}{100}\right) \times \left(\frac{30}{12}\right)$$

$$= 1850$$

$$\textcircled{2} A = P + I$$

$$= 8000 + 1850$$

$$= 9850$$

$$I = ?$$

$$P = 8000$$

$$r = 0.0925$$

$$t = 2.5$$

∴ Lisa earned \$1850 in interest
and has a total of \$9850 in
her account

$$\frac{8}{100} = 0.08$$

Ex 2:

Dylan has an investment that earns him \$300 each year. If the annual rate is 8%, what is the principal?

$$I = 300$$

$$P = ?$$

$$r = 0.08$$

$$t = 1$$

$$\frac{I}{rt} = \frac{Prt}{rt}$$

$$P = \frac{I}{rt}$$

$$= \frac{300}{(0.08 \times 1)}$$

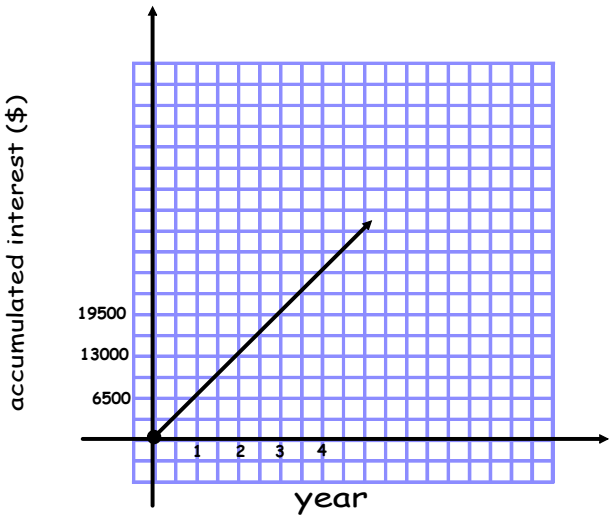
$$= 3750$$

∴ My principal would be \$3750

Ex 3:
 Complete the table if \$100000 is invested at 6.5% /a simple interest.

Note:
 You only earn
 interest
 on Original
 amt invested

Year	Interest \$ $I = Prt$	Accumulated Interest \$	Amount at end of year
1	\$6500	\$6500	\$106500
2	\$6500	\$13000	\$113000
3	\$6500	\$19500	\$119500
4	\$6500	\$26000	\$126000
5	\$6500	\$32500	\$132500
6	\$6500	\$39000	\$139000



Notice Simple
 Interest is
 Linear

Ex 4:

David invested in a 15-week term deposit that earned $7\frac{3}{4}\%$ of simple interest annually. When it matured he received \$1250 in interest. He then reinvested all his money in a 40-week term deposit so that it would earn 8.5% annually.

a) How much was the original investment?

$$I = 1250$$

$$P = ?$$

$$r = 0.0775$$

$$t = \frac{15}{52}$$

$$P = \frac{I}{rt}$$

$$= \frac{1250}{(0.0775 \times \frac{15}{52})}$$

$$I = Prt$$

$$= \frac{1250}{0.022355769}$$

$$= 55913.98$$

original investment

$$55913.98 + 1250 = 57163.98$$

b) How much will David have when the second term deposit mature?

$$I = 57163.98 (0.085) (\frac{40}{52})$$

$$I = 3737.64$$

interest

$$A = P + I$$

$$= 57163.98 + 3737.64$$

$$= 60901.62$$

PRACTICE:

p459 # 1, 2, 4, 6 - 9, 10a, 13, 15



